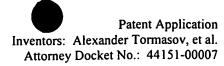# CLAIMS

What is claimed is:

1. A method for data storage and retrieval from a network of servers, said method producing a distributed data storage system with a level of redundancy, said method comprising the steps of:

    a.    defining an amount of data pieces;

    b.    defining a minimal amount of data pieces k needed to restore a data file;

    c.    for a distributed arbitrarily-connected network of L servers, defining a number M of the servers that could be rendered inaccessible;

    d.    creating at least M+k data pieces for storage on at least M+k servers;

    whereby the ability to restore the data file from M servers is retained and the optimal utilization of data storage means obtained.

2. The method as defined in Claim 1 wherein said data pieces are numbered, interchangeable, and of equal size.

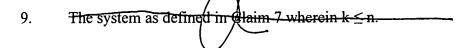3. ~~The method as defined in Claim 1 wherein k ≤ n.~~

4. The method as defined in Claim 1 wherein $M<L$.

1    5.    The method as defined in Claim 1 wherein the number of data pieces n

2    depends on the fault tolerance level of and the number of servers in the network.


1    6.    The method as defined in Claim 1 wherein the amount of redundancy data

2    stored for each file is incremented by steps of 1/k of the original file size and could be

3    varied for each file.
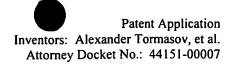
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1    7.    A system for data storage and retrieval from a network of servers, said

2    system providing data storage with a controllable level of redundancy, said system

3    comprising for each file:

4         a predetermined amount of data pieces n;

5         a minimal amount of data pieces k needed to restore a data file;

6         a predetermined number M of servers in a network containing L servers, that

7    could be rendered inaccessible;

8         at least M+k data pieces for storage on at least M+k servers;

9         wherein the ability to restore a data file from M servers is retained and the optimal

10   utilization of data storage means is obtained.


1    8.    The system as defined in Claim 7 wherein said data pieces are numbered,

2    interchangeable, and of equal size.


1    9.    ~~The system as defined in Claim 7 wherein k ≤ n.~~


10.   The system as defined in Claim 7 wherein M<L.


1    11.   The system as defined in Claim 7 wherein the number of data pieces n

2    depends upon the fault tolerance level and the number of servers in the network.

1    12.    The system as defined in Claim 7 wherein the amount of redundancy data

2    stored for each file is incremented by steps of 1/k of the original file size and could be

3    varied for each file.

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